UNITED STATES PATENT AND TRADEMARK OFFICE

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

_____

Ex parte HERIBERT BALDUS, WOLFGANG OTTO BUDDE,
KARIN KLABUNDE, and OLIVER MUELHENS

_____

Appeal 2009-0162
Application 10/043,523[1]
Technology Center 2400

_____

Decided:[2] May 8, 2009

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Before ROBERT E. NAPPI, JOHN A. JEFFERY,
and MARC S. HOFF, *Administrative Patent Judges*.

HOFF, *Administrative Patent Judge*.

DECISION ON APPEAL

_____

STATEMENT OF CASE

Appellants appeal under 35 U.S.C. § 134 from a Final Rejection of claims 1-5. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

The invention relates to a transponder, having layered firmware, for monitoring interconnected network elements of a hybrid fiber coax (HFC) network. Specifically, a transponder is integrated within each network element and communicates with a remote central monitoring system that ensures functionality and reliability of the HFC network. The firmware comprises several overlaid layers that include software components known as function modules. The bottom layer contains function modules which describe the functionality of the hardware components of the transponder. The function modules of the middle layer lying above the bottom layer jointly form an application interface which can process the application software of various manufacturer-dependent central monitoring systems. The top layer contains various manufacturer-specific application programs. Since the layered firmware is suited for open systems interconnection through the use of a layered protocol, the transponder can be used in different monitoring systems having different protocols and administrative purposes (Spec. 1-2).

Claim 1 is exemplary:

1.   A transponder with firmware
       which firmware comprise several overlaid layers (2, 12, 22) containing several software components known as function modules (3 to 11, 13 to 19),
       where a bottom layer (2) contains the function modules (3 to 11) which describe the functionality of the hardware components of the transponder,

and the function modules (13 to 19) of the layer (12) lying above the bottom layer (2) jointly form an application interface which can process an application software of various manufacturer-dependent central monitoring systems, and hence the same transponder can be used in different monitoring systems with different protocols and management purpose.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Doshi   US 6,041,051   Mar. 21, 2000

Hargrove   US 6,891,804 B2   May 10, 2005

Hind   US 6,976,163 B1   Dec. 13, 2005

Claims 1 and 3 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Hargrove.

Claim 2 stands rejected under 35 USC § 103(a) as being unpatentable over Hargrove in view of Doshi.

Claims 4 and 5 stand rejected under 35 USC § 103(a) as being unpatentable over Hargrove in view of Hind.

Rather than repeat the arguments of Appellants or the Examiner, we make reference to the Appeal Brief (filed May 31, 2007) and the Examiner's Answer (mailed September 25, 2007) for their respective details.

ISSUES

Regarding representative claim 1, Appellants argue that Hargrove's presentation layer does not provide an application layer or an application interface for a central monitoring system application (App. Br. 5). Moreover, Appellants argue that Hargrove does not teach the processing of

various manufacturer-dependent central monitoring system applications (App. Br. 6).

The Examiner finds that Hargrove discloses a presentation layer which provides a standard interface for heterogeneous systems having different monitoring systems with different protocols and management purposes, where the application layer is accessible to application programs (including central monitoring software) to communicate with lower layers of the transponder (Ans. 4).

The contentions of the Appellants present us with the following two issues:

1. Did Appellants show that the Examiner erred in finding that Hargrove teaches a transponder having firmware that includes a layer lying above the bottom layer which jointly forms an application interface which can process application software of various manufacturer-dependent central monitoring systems and hence the same transponder can be used in different monitoring systems with different protocols and management purposes?

2. Did Appellants show that the Examiner erred in finding that Hargrove teaches that the function modules of the layer lying over the bottom layer are provided for access to the other function modules of the same layer and the bottom layer?

FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence.

The Invention

1.   According to Appellants, the invention concerns a transponder having firmware, which firmware comprises several overlaid layers (2, 12, 22) containing several software components known as function modules (Fig. 2; Spec. 1:7-17).

2.   A bottom layer that includes function modules which describe the functionality of the hardware components of the transponder (Spec. 1:12-13).

3.   The function modules of the layer lying above the bottom layer jointly form an application interface which can process application software of various manufacturer-dependent central monitoring systems (Spec. 1:14-17).

Hargrove

4.   Hargrove teaches a network element such as a transponder with firmware comprising several overlaid layers 200-260 containing several software components known as function modules (Fig. 2; col. 2, ll. 15-17).

5.   Hargrove teaches a bottom layer (physical layer 200) that includes function modules which describe the functionality of the hardware components of the transponder (col. 2, ll. 9-10; col. 4, ll. 47-53, ll. 62-64).

6.   The function modules of the (presentation) layer 250 lying above the bottom layer jointly form an application interface which can process an application software of various manufacturer-dependent central

monitoring systems in which the layer 250 inherently provides the standard interface for heterogeneous systems, e.g., application programs from software companies, or the application layer 260 to communicate with lower layers of the of the component (col. 2, ll. 16-18, 31-35).

7. Hargrove teaches an upper layer or application layer 260 which may be accessible to any software, including a central monitoring software for the various transactions that occur below it, e.g., file transfers and inter-host control/access is enabled by the application layer 260 (col. 2, ll. 34-39).

8. Hargrove teaches the presentation layer 250 that is above the bottom/physical layer 200 and provides an interface for the application layer 260 which can process central monitoring system application software, wherein the software application uses the application layer to interface through to the physical layer to access and monitor hardware (col. 2, ll. 34-39).

9. Hargrove teaches the presentation layer 250 is concerned with such functions as transformation of data encodings, so that heterogeneous systems may engage in meaningful communication (col. 2, ll. 31-33).

10. Hargrove teaches the OSI standard for network protocol in which different software manufacturers of various network elements having different operating systems can communicate. This protocol specifically provides a plurality of layers, from lowest to highest, wherein each layer is defined by the functions it relies upon from the next lower level and by the services it provides to the layer above (col. 1, l. 67-col. 2, l. 7; col. 2, ll. 8-18, 32-33 and 37-39; col. 4, ll. 41-46; col. 4, ll. 64-67; col. 5, ll. 29-41 and col. 6, ll. 6-16).

Doshi

11.   Doshi teaches a HFC network for communication between a headend transmission network and LAN using the IEEE 802.3 standard (col. 5, ll. 31-44; col. 6, ll. 18-20).

Hind

12.   Hind teaches access/downloading of function modules (firmware updates) by the device manufacturer, e.g. to fix Ethernet adaptor/transponder hardware issues, in a flexible and cost effective manner (col. 15, ll. 1-8; col. 14, ll. 58-21; col. 15, ll. 10-16).

PRINCIPLES OF LAW

Anticipation pursuant to 35 U.S.C § 102 is established when a single prior art reference discloses expressly or under the principles of inherency each and every limitation of the claimed invention. *Atlas Powder Co. v. IRECO Inc.*, 190 F.3d 1342, 1347 (Fed. Cir. 1999); *In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994).

Analysis of whether a claim is patentable over the prior art under 35 U.S.C. § 102 begins with a determination of the scope of the claim. We determine the scope of the claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction in light of the specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). The properly interpreted claim must then be compared with the prior art.

In an appeal from a rejection for anticipation, the Appellant must explain which limitations are not found in the reference. *See Gechter v.*

Davidson, 116 F.3d 1454, 1460 (Fed. Cir. 1997) ("[W]e expect that the Board's anticipation analysis be conducted on a limitation by limitation basis, with specific fact findings for each *contested* limitation and satisfactory explanations for such findings.")(emphasis added). *See also In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006) ("On appeal to the Board, an applicant can overcome a rejection [under § 103] by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.") (quoting *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998)).

> Section 103 forbids issuance of a patent when 'the differences
> between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at
> the time the invention was made to a person having ordinary skill in
> the art to which said subject matter pertains.'

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 405 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 550 U.S. at 407 ("While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.")

In *KSR*, the Supreme Court emphasized "the need for caution in granting a patent based on the combination of elements found in the prior art," *id.* at 415, and discussed circumstances in which a patent might be determined to be obvious. In particular, the Supreme Court emphasized that

"the principles laid down in *Graham* reaffirmed the 'functional approach' of *Hotchkiss*, 11 How. 248." *KSR,* 550 U.S. at 415 (citing *Graham*, 383 U.S. at 12), and reaffirmed principles based on its precedent that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.* The Court explained:

> When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id. at 417. The operative question in this "functional approach" is thus "whether the improvement is more than the predictable use of prior art elements according to their established functions." *Id.*

ANALYSIS

Claim 1

Appellants contend that the Examiner erred in finding that Hargrove teaches a transponder having firmware that includes a layer lying above the bottom layer which jointly forms an application interface which can process application software of various manufacturer-dependent central monitoring systems and hence the same transponder can be used in different monitoring systems with different protocols and management purposes (App. Br. 5). Specifically, Appellants argue that Hargrove does not teach the layer lying

above the bottom layer jointly to form an application interface (App. Br. 5).
In Appellants' view, the presentation layer of Hargrove is not the same as
the middle layer 12 lying above the bottom layer (App. Br. 5). Appellants
argue that the presentation layer taught in Hargrove does not form an
application layer which can process application software (App. Br. 5).

We are not persuaded by Appellants' arguments. We concur in the
Examiner's finding that Hargrove discloses a layer lying above the bottom
layer which jointly forms an application interface (Ans. 8). Specifically, the
presentation layer 250 of Hargrove is a layer that lies above the bottom layer
200 (FF 8). Hargrove discloses using the OSI standard for network
protocols (Ans. 8, FF 10). This protocol specifically provides a plurality of
layers, from lowest to highest, wherein each layer is defined by the functions
it relies upon from the next lower level and by the services it provides to the
layer above (FF 10). Thus, the presentation layer 250 provides an interface
between any application communicating with the application layer 260 and
the physical or bottom layer 200 (FF 6, 7, and 8)

Further, Appellants argue that use of application software of various
manufacturer-dependent central monitoring systems is not disclosed in
Hargrove (App. Br. 5). Appellants assert that Hargrove only describes
transformation of data encodings so that heterogeneous systems may engage
in communication (App. Br. 5, FF 9). According to Appellants, since
Hargrove does not teach a software application for central monitoring
systems, the Examiner must establish the inherency of that claim element,
and the Examiner has failed to do so (App. Br. 6).

Claim 1 recites a "layer (12) lying above the bottom layer (2) jointly
form[s] an application interface which can process an application software

of various manufacturer-dependent central monitoring systems." Thus, the scope of claim 1 includes that there is a layer above the bottom layer that can process an application such as a central monitoring system software application. However, we do not find any limitation in claim 1, nor have Appellants identified any limitation in claim 1 that requires that the *only* purpose of the layer lying above the bottom layer is to process application software related solely to central monitoring systems.

We agree with the Examiner's finding that the presentation layer handles the function of transforming the data encodings for the applications requesting communication by monitoring and receiving services provided by the layer below it (Ans. 8 and FF 10). As all of the data is passed through this presentation layer to be correctly communicated to the requesting applications, the presentation layer receives and responds to central monitoring system functions for the data to be communicated, as it is responding to application requests for data from the lower layers which would be monitored and received (FF 10). As such, the network elements taught in Hargrove would provide for central monitoring systems, as the applications are requesting and receiving specific data from the lower layers services (Ans. 8).

We do not find Appellants' argument persuasive of Examiner error. We will therefore sustain the Examiner's rejection of claim 1 under 35 U.S.C. § 102.

Claim 3

Claim 3 requires that "the function modules (13 to 19) of the layer (12) lying over the bottom layer (2) are provided for access to the other

function modules (3 to 11, 13 to 19) of the same layer and the bottom layer
(2)."

The Examiner finds that Hargrove teaches the function modules of the
layer lying over the bottom layer are provided for access to the other
function modules of the same layer and the bottom layer (FF 10), wherein
higher layers, such as the presentation layer 250, use its protocols and
functions to further access/transact with the lower level protocols down to
the physical layer using the stacking/layering method as disclosed for the
OSI standard network protocol (FF 10). Since the presentation layer
includes functions such as those that establish the transformation of data
encodings, the Examiner finds that transforming data encodings for different
formats may be provided by a plurality of function modules *within* the layer
(Ans. 10).

Appellants contend that the Examiner erred in finding that Hargrove
teaches the function modules of the layer lying over the bottom layer are
provided for access to the other function modules of *the same layer* and the
bottom layer, as claim 3 requires (App. Br. 7). Specifically, Appellants
argues that the function modules of the layer lying over the bottom layer as
taught in Hargrove are not provided for access to the other function modules
of the same layer (App. Br. 7).

Although the Examiner has provided evidence of the function
modules within the presentation layer communicating with function modules
in the layers *above* and *below* it, we agree with Appellants that the Examiner
failed to point to evidence that Hargrove teaches function modules within
the presentation layer accessing other function modules *within* "the same
layer," as recited by claim 3. We have reviewed Hargrove and do not find

such a teaching. Accordingly, we find that the Examiner has not shown that Hargrove teaches all the limitations of claim 3.

Therefore, because the Appellants have established error in the Examiner's rejection, we reverse the Examiner's rejection of claim 3 under 35 U.S.C. § 102.

Claim 2

Appellants argue that claim 2 is patentable over the cited prior art because the claim depends from claim 1 and because Doshi does not cure the deficiencies asserted with respect to the Hargrove reference (App. Br. 8).

As noted *supra*, however, we find that Hargrove teaches all the features of claim 1. We, therefore, affirm the Examiner's rejection of claim 2 under 35 U.S.C. § 103, for the same reasons expressed with respect to parent claim 1, *supra*.

Claims 4 and 5

As noted *supra*, we reversed the rejection of claim 3 from which claims 4 and 5 depend. We have reviewed Hind (the additional reference applied by the Examiner to reject these claims), and find that none of the cited references teaches the limitations deemed to be absent from Hargrove.

We therefore reverse the Examiner's rejections of claims 4 and 5 under 35 U.S.C. § 103, for the same reasons expressed with respect to the § 102 rejection of parent claim 3, *supra*.

CONCLUSIONS OF LAW

Appellants have not shown that the Examiner erred in finding that Hargrove teaches a transponder having firmware that includes a layer lying

above the bottom layer which jointly forms an application interface which can process application software of various manufacturer-dependent central monitoring systems and hence the same transponder can be used in different monitoring systems with different protocols and management purposes.

Appellants have shown that the Examiner erred in finding that Hargrove teaches the function modules of the layer lying over the bottom layer are provided for access to the other function modules of the same layer and the bottom layer

ORDER

The Examiner's rejection of claims 1 and 2 is affirmed. The Examiner's rejection of claims 3, 4, and 5 is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

<u>AFFIRMED-IN-PART</u>

ELD

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